In the Specification

Please substitute the indicated paragraphs with the rewritten paragraphs below. A prior version of the paragraphs with all changes made by the current amendment shown using bracketing and underlining is attached hereto, and is captioned "**VERSION WITH MARKINGS TO SHOW CHANGES MADE**."

Please replace the paragraph beginning at line 29 of page 5 with the following rewritten paragraph:

A1

Referring now to the drawings, in Fig. 1, there is shown a system 10 for calibrating light output from a light-emitting diode (LED). The system 10, in one embodiment, includes a support 12, on which one or more LEDs 13 to be calibrated may be positioned. The support 12 may also accommodate a module (not shown) with one or more LEDs 13 therein, similar to those modules used in connection with various LED illumination devices. Such a module is disclosed in U.S. Patent No. 6,016,038, which is hereby incorporated herein by reference.

Please replace the paragraph beginning at line 5 of page 7 with the following rewritten paragraph:

A2

The system 10 further includes a memory mechanism 17 in association with the one or more LEDs 13, and on which the calibration value for use in adjusting the light output by the one or more LEDs 13 is stored. Memory mechanism 17 may be any commercially available memory mechanism having data storing capability. In one embodiment of the invention, the memory mechanism 17 is physically coupled to the one or more LEDs 13, so that once the calibration value has been stored thereon, the memory mechanism 17 can be removed from the support 12 along with the one or more LEDs 13. Upon subsequent generation of light output from the LED 13 in, for example, an illumination device, the calibration value on the memory mechanism 17 can be accessed to affect the output generated from the LED 13. In other words, the calibration

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value permits the light output from the LED to approximate light output accorded to a reference value for that type of LED.

Please replace the paragraph beginning at line 20 of page 8 with the following rewritten paragraph:

A3

Referring now to Fig. 2, a process for calibrating light output is shown therein. Once the LED 13 is in position for calibration, as indicated in item 21, the LED 13 may be caused to generate a light output 22. If one or more LEDs 13 are being calibrated, each LED in the group may be caused to generate light output in sequential fashion. As each LED 13 generates its light output, for example, red, green or blue, the photosensor 14 records, in step 23, a peak measurement from the light output, and assigns, in step 24, as a spectral response, a relative value for the peak measurement. As shown in Fig. 3A, the peak value for the light output can vary widely. In step 25, the peak value for each individual output may be compared to a reference value (e.g., within a table of reference values) that had previously been established as representative for an LED of that type. If there are any differences between the peak value and the established reference value, the peak value for that individual output is adjusted, in step 26, by scaling that individual output to the reference value. The adjustment of the light output in this manner can result in the higher peaks being reduced (i.e., scaled) to match the value of the lower peaks, see Fig. 3B, to provide a uniform light output. It should be noted that several iterations (i.e., adjustments) may be needed to get an adjusted peak value that closely resembles the reference value. Moreover, in a situation wherein calibration of a plurality of LEDs is required, once calibration for one LED is completed, calibration for the next LED can be initiated.

Please replace the paragraph beginning at line 7 of page 9 with the following rewritten paragraph:

A4

In adjusting the output, a calibration value may be formulated. The calibration value for the light output of each LED 13 may then be stored, in step 27. This calibration value, once stored, can replace previous calibration settings, if any, and can be employed in all future/subsequent generation of light output by the LED 13. Storage of the calibration value can

Cont'd A4

be accomplished by providing the LED 13 with a memory mechanism 17, such as a memory chip (see Fig. 1). In this manner, when commands are sent to the LED 13 for generating a light output, the stored calibration value for that particular LED may be accessed from the memory chip and used to permit the LED 13 to generate a light output which approximates a light output accorded to the reference value.

Please replace the paragraph beginning at line 25 of page 9 with the following rewritten paragraph:

A5

The system 10 may also be used to determine if there have been any LED placement errors during the LED board assembly. In particular, a discrepancy between a measured color value and referenced color value may indicate that one or more of the LEDs may have been placed improperly, e.g., a green LED in a red location or some other incorrect combination, during assembly.

Please replace the paragraph beginning at line 11 of page 10 with the following rewritten paragraph:

A6

Looking now at Fig. 4, Fig. 4 illustrates, in accordance with an embodiment of the present invention, a device 40 for calibrating light output from a light-emitting diode. The device 40 includes a support 41, to which an LED 42, for instance, newly manufactured, or from an illumination device (not shown), may be positioned thereon for calibration. The device 40 also includes a photosensor 43 adjacent to the support 41 for obtaining an output measurement generated by the LED. The photosensor 43 may be placed in any location relative to the LED 42, so long as the photosensor 43 can receive the output by the LED 42. Accordingly, the location of the photosensor 43 may be adjustable within the device 40, so that for example, the photosensor 43 may be moved adjacent to the LED 42, or into substantial alignment with the LED 42.

Please replace the paragraph beginning at line 3 of page 12 with the following rewritten paragraph:

A7

In Fig. 5, another calibration device 50 is provided, in accordance with an embodiment of the present invention. The device 50 is similar to the device 40, illustrated in Fig. 4, except that the device 50 can be configured to calibrate the light output of one or more LEDs 13, without having to remove the one or more LEDs 13 from the illumination device 52 within which the one or more LEDs sit.

Please replace the paragraph beginning at line 8 of page 12 with the following rewritten paragraph:

A8

The calibration device 50, as shown in Fig. 5, includes a housing 51 and a photosensor 53 at one end of the housing 51 for obtaining an output measurement from the light output generated by the one or more LEDs 13. The photosensor 53 may be affixed at one end of the housing 51, or may be adjustable to alter its position within the housing 51. As the one or more LEDs 13 will remain within the illumination device 52 and will not be positioned on the device 50 during calibration, the calibration device 50 may be provided with an activation unit 54 for inducing light output from the one or more LEDs 13. To activate the one or more LEDs 13 to generate alight output, the activation unit 54 may send a signal directed at the one or more LEDs 13. To this end, the illumination device 52 or the one or more LEDs 13 themselves may be designed with the ability to receive the signal from the activation unit 54. The signal from the activation unit 54 can be sent by conventional cable or wirelessly. In the wireless embodiment, the device 50 may include a transmitter 55 coupled to the activation unit 54 to transmit the signal. Correspondingly, the illumination device 52 can be provided with a receiver (not shown) coupled to the one or more LEDs 13 to receive the signal transmitted from the activation unit 54.

Please replace the paragraph beginning at line 22 of page 12 with the following rewritten paragraph:

A9

The calibration device 50 may also include a communication mechanism, such as a port 56, in the housing 51, similar to port 44 in device 40. In particular, the port 56 maybe designed to be in coupling communication with the photosensor 53, so that an output measurement from

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the photosensor 53 may be communicated to a processor 57 for formulation of a calibration value. The port 56 may also be designed so that data, such as the calibration value, from the processor 57 may be received by the device 50, and subsequently relayed to the one or more LEDs 13. The port 56 may employ conventional cables for communication or may employ wireless means, such as a transmitter or receiver, as described above. In one embodiment, the transmitter in connection with the port 56 and transmitter 55, used to transmit activation signals to the one or more LEDs 13, may be a single transmitter.

Please replace the paragraph beginning at line 1 of page 13 with the following rewritten paragraph:

A10

The device 50, in one embodiment, may include a display 58, on which parameters regarding light output from the one or more LEDs 13 may be provided to inform a user of the status of the light output from the one or more LEDs 13. The device 50 may also be provided with an interface 59 to permit the user to vary light output and/or parameters for the one or more LEDs. The device 50 may also include a memory mechanism 591. The memory mechanism 591 may be used for storing the output measurement from the photosensor 53, as well as other light output parameters, all of which can subsequently be communicated to an off-site processor 57 for calibration processing. In an alternate embodiment, the device 50 may incorporate the processor 57 within the device 50 to permit, for example, calibration to be carried out in a timely and efficient manner, without the need to communicate with an off-site processor.

Please replace the paragraph beginning at line 11 of page 13 with the following rewritten paragraph:

A11

Looking now at Fig. 6, the present invention further provides an illumination device 60 which may be capable of self calibration. The device 60 may be similar to the module in U.S. Patent No. 6,016,038, and includes a housing 61, and an LED illumination source 62 including one or more LEDs 13 within the housing 61. A photosensor 63 may be positioned adjacent to the LED illumination source 62 to obtain an output measurement generated by the LED illumination source 62. The position of the photosensor 63 relative to the LED illumination

Cont'd A11

source 62, in one embodiment, permits the photosensor 63 to uniformly record the light output from the source 62.

Please replace the paragraph beginning at line 19 of page 13 with the following rewritten paragraph:

A12

The device 60 may also include a processor 64 within the housing 61 and in communication with the photosensor 63 for calibrating the output measurement from the photosensor 63 against a reference value. The processor 64 may also be in communication with the LED illumination source 62 for transmitting thereto a resulting calibration value from the processor 64. This calibration value may be used to affect the light output of the source 62, such that the output approximates an output accorded to the reference value. In one embodiment, the calibration process may be part of a feedback loop where the processor 64 monitors the light output from the source 62 via a photosensor 63 and automatically communicates the calibration value to the illumination source 62 to permit the light output to compensate for any changes.

Please replace the paragraph beginning at line 3 of page 14 with the following rewritten paragraph:

A13

By providing the device 60 with the above components, the device 60 may be activated to self-calibrate periodically. For instance, parameters regarding the illumination source 62 may be reviewed on the display 65. Should the illumination source 62 require calibration, the interface 66 may be accessed and the calibration process initiated. Once the calibration is completed, and the illumination source 62 can now generate a light output that approximates, for example, a light output defined by the user by way of the interface 66, the calibration ceases. In an embodiment of the invention, the device 60 may be designed to have the processor 64 initiate calibration, for instance, on a periodic basis, within certain predefined intervals, or in response to a particular condition, so that the light output from the illumination source 62 may be kept at a desired predefined level. Again, once calibration permits the illumination source 62 to achieve the desired light output level, the calibration ceases.